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EXAMINER

MURRAY, DANIEL C

ART UNIT

PAPER NUMBER

2143

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

1. This Action is in response to Applicant's amendment filed on 04FEB2008. **Claims 1-16** are now pending in the present application. **This Action is made FINAL.**

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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3. **Claims 1-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Okanoue (US Patent # 5,179,861)** in view of **Haas (US Patent # US 6,304,556 B1)** and in further view of **Iyer et al. (US Patent #US 7,058,706 B1)**.

a) Consider **claim 1**, Okanoué clearly shows and discloses, a node search method for searching for a service node for providing a service to a node (column 1 lines 54-63), in a communication system including a plurality of service nodes (figure 1, abstract, column 2 lines 18-24, column 3 lines 40-46) and the node, each of the service nodes and the mobile node having a node storage unit configured to store addresses of service nodes (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-60), the node search method comprising: transmitting a node search packet for searching for the service node from a search node (abstract, column 1 lines 64-67, column 2 lines 24-26), which searches for the service node, to an address stored in the node storage unit of the search node (figure 4a, abstract, column 4 lines 48-56, column 5 lines 56-67); returning a node notice packet from at least one of a search packet reception node, which has received the node search packet (abstract, column 2 lines 3-8, lines 29-35), and a peripheral node other than the search packet reception node (abstract, column 1 line 67, column 2 lines 1-5 lines 32-35), to the search node in response to the node search packet; detecting the service node on based on the returned node notice packet by the search node (abstract, column 2 lines 5-17, lines 31-35); and updating the node storage unit of the search node based on the service node detected by the search node (figure 7, column 6 lines 13-17 lines 21-32). However, Okanoué does not specifically disclose a mobile communication system or mobile nodes or transmitting to the detected service node, by the search node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay

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value and a number of hops in a packet transmission between the search node and the detected service node..

Haas shows and discloses two network protocols, which are particularly suitable for self-reconfigurable communications networks, such as ad-hoc networks (mobile communication system)(abstract, column 1 lines 23-25 lines 66-67, column 8 lines 22-24). More particularly, the first protocol is instrumental in efficiently finding routes within a network, while the second protocol can be used to locate users (mobile nodes)(column 1 lines 23-25 lines 66-67, column 8 lines 22-24) in a network with rapidly changing topology.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haas into the system of Okanoué for the purpose of mobility management (abstract, column 3 lines 47-51), efficiently finding routes within a network, and locating users in a network with rapidly changing topology (abstract, column 1 lines 7-13). However, Okanoué as modified by Haas does not specifically disclose transmitting to the detected service node, by the search node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Iyer et al. show and disclose determining a dynamic hop count and latency between two nodes across a network in a computer environment and transmitting to the detected service node, by the search node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node (abstract, column 1 lines 65-67, column 2 lines 1-5 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art that the time the invention was made to incorporate the teachings of Iyer et al. into the system of Okanoué for the purpose of determining the number of hops and latency between two nodes.

b) Consider **claim 2**, Okanoué clearly shows and discloses, a node comprising: a node storage unit configured to store addresses of service nodes for providing a service to a node (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-60); a search packet creation unit configured to create a node search packet to be transmitted to an address stored in the node storage unit, in order to search for the service node (figure 4a, abstract, column 1 lines 64-67, column 2 lines 24-26, column 4 lines 48-56, column 5 lines 56-67); a communication unit configured to transmit the node search packet created by the search packet creation unit, and to receive a node notice packet returned from at least one of a search packet reception node, which has received the node search packet (figure 2, column 4 line 66 column 5 lines 1-2), and a peripheral node other than the search packet reception node in response to a transmitted node search packet (abstract, column 1 line 67, column 2 lines 1-5 lines 32-35); a detection unit configured to detect the service node based on the node notice packet received by the communication unit (abstract, column 2 lines 5-17, lines 31-35); and an update unit configured to update the node storage unit based on the service node detected by the detection unit (figure 7, column 6 lines 13-17 lines 21-32) However, Okanoué does not specifically disclose a mobile node or that the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Haas shows and discloses two network protocols, which are particularly suitable for self-reconfigurable communications networks, such as ad-hoc networks. More particularly, the first protocol is instrumental in efficiently finding routes within a network, while the second protocol can be used to locate users (mobile nodes)(column 1 lines 23-25 lines 66-67, column 8 lines 22-24) in a network with rapidly changing topology.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haas into the system of Okanoue for the purpose of mobility management (abstract, column 3 lines 47-51), efficiently finding routes within a network, and locating users in a network with rapidly changing topology (abstract, column 1 lines 7-13). However, Okanoue as modified by Haas does not specifically disclose the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Iyer et al. show and disclose determining a dynamic hop count and latency between two nodes across a network in a computer environment wherein the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node (abstract, column 1 lines 65-67, column 2 lines 1-5 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art that the time the invention was made to incorporate the teachings of Iyer et al. into the system of Okanoué for the purpose of determining the number of hops and latency between two nodes.

c) Consider **claim 3**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, further comprising: a data creation unit configured to create the data for investigating node information concerning the service node detected by the detection unit, the data being transmitted to the detected service node (column 6 lines 13-20), wherein the node storage unit is configured to store the node information (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-67, column 6 lines 13-17 lines 21-32), the communication unit is configured to transmit the data created by the data creation unit, and to receive response data returned in response to the data by the detected service node (column 1 lines 23-25 lines 66-67, column 8 lines 22-24), and the update unit is configured to update the node storage unit based on the returned response data (figure 7, column 6 lines 13-17 lines 21-32).

d) Consider **claim 4**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, wherein node information concerning the service node is included in the node notice packet, the node storage unit is configured to store the node information, and the update unit is configured to update the node storage unit based on the returned node notice packet (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-67, column 6 lines 13-17 lines 21-32).

e) Consider **claim 5**, and **as applied to claim 3 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 3 or 4, wherein the node storage unit is configured to store the addresses of the service nodes and the node information

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according to a predetermined criterion (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-60, column 6 lines 13-17 lines 21-32).

f) Consider **claim 6**, and **as applied to claim 4 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 4, further comprising: a determination unit configured to determine inter-node information between the search node and the peripheral node according to inter-node information between the search node and the search packet reception node and inter-node information between the search packet reception node and the peripheral node based on the node notice packet (column 2 lines 5-16 lines 31-35), wherein the update unit is configured to update the node storage unit based on the inter-node information between the search node and the peripheral node determined by the determination unit (figure 7, column 6 lines 13-17 lines 21-32).

g) Consider **claim 7**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, further comprising: a notice packet creation unit configured to create the node notice packet by accessing the node storage unit (figure 8, column 6 lines 36-58), wherein the communication unit is configured to transmit the node notice packet created by the notice packet creation unit (column 1 lines 23-25 lines 66-67, column 8 lines 22-24).

h) Consider **claim 8**, and **as applied to claim 7 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 7, wherein the notice packet creation unit is configured to create the node notice packet that is passed through the peripheral node (abstract, column 1 line 67, column 2 lines 1-5 lines 32-35).

i) Consider **claim 9**, and **as applied to claim 7 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 7, wherein the notice

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packet creation unit is configured to create the node notice packet when the communication unit has received at least one of the node search packet, the node notice packet, and a node notice request packet for requesting return of the node notice packet (figure 8, column 6 lines 36-58).

j) Consider **claim 10**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, further comprising: a request packet creation unit configured to create the node notice request packet for requesting the peripheral node to return the node notice packet (figure 4a, column 5 lines 18-24, column 6 lines 1-20), wherein the communication unit is configured to transmit the node notice request packet created by the request packet creation unit (column 1 lines 23-25 lines 66-67, column 8 lines 22-24).

k) Consider **claim 11**, and **as applied to claim 10 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 10, wherein the request packet creation unit is configured to create the node notice request packet when the communication unit has received at least one of the node search packet, the node notice packet, or the node notice request packet (figure 8, column 6 lines 35-58).

l) Consider **claim 12**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, further comprising: a request packet creation unit configured to create a node registration request packet for requesting registration in the node storage unit of another service node (figure 7, column 6 lines 7-17), wherein the communication unit is configured to transmit the node registration request packet created by the request packet creation unit (column 1 lines 23-25 lines 66-67, column 8 lines 22-24).

m) Consider **claim 13**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, wherein the communication unit is configured to receive a node registration request packet for requesting

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registration in the node storage unit of another service node (column 1 lines 23-25 lines 66-67, column 8 lines 22-24), and the update unit is configured to update the node storage unit based on the node registration request packet (figure 7, column 6 lines 13-17, lines 21-23).

n) Consider **claim 14**, and **as applied to claim 2 above**, Okanoué as modified by Haas and as further modified by Iyer et al. clearly show and disclose, the node of claim 2, However, Okanoué does not specifically disclose a selection criterion holding unit configured to hold a selection criterion for selecting a service node to be used; and a selection unit configured to access the node storage unit and select the service node to be used, based on the selection criterion held in the selection criterion holding unit.

Haas shows and discloses a selection criterion holding unit (memory) configured to hold a selection criterion for selecting a service node to be used (node location and route information); and a selection unit (processor) configured to access the node storage unit and select the service node to be used, based on the selection criterion held in the selection criterion holding unit (column 6 lines 58-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haas into the system of Okanoué for the purpose of efficiently finding routes within a network, and locating users in a network with rapidly changing topology (abstract, column1 lines 7-13).

o) Consider **claim 15**, Okanoué clearly shows and discloses, a communication system comprising: a search node configured to search for a service node for providing a service to a node by transmitting a node search packet in order to search for the service node (abstract, column 1 lines 64-67, column 2 lines 24-26); a search packet reception node configured to receive the node search packet transmitted from the search node (figure 2, column 4 line 66 column 5 lines 1-2); and a

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peripheral node other than the search packet reception node (abstract, column 1 line 67, column 2 lines 1-5 lines 32-35), wherein the search node includes: a node storage unit configured to store addresses of service nodes (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-60); a search packet creation unit configured to create the node search packet to be transmitted to an address stored in the node storage unit (figure 4a, abstract, column 1 lines 64-67, column 2 lines 24-26, column 4 lines 48-56, column 5 lines 56-67); a communication unit configured to transmit the node search packet created by the search packet creation unit, and to receive a node notice packet returned from at least one of the search packet reception node (figure 2, column 4 line 66 column 5 lines 1-2) and the peripheral node in response to a transmitted node search packet (abstract, column 1 line 67, column 2 lines 1-5 lines 32-35); a detection unit configured to detect the service node based on the node notice packet received by the communication unit (abstract, column 2 lines 5-17, lines 31-35); and an update unit configured to update the node storage unit based on the service node detected by the detection unit (figure 7, column 6 lines 13-17 lines 21-32). However, Okanoué does not specifically disclose a mobile communication system or mobile nodes or that the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Haas shows and discloses two network protocols, which are particularly suitable for self-reconfigurable communications networks, such as ad-hoc networks (mobile communication system)(abstract, column 1 lines 23-25 lines 66-67, column 8 lines 22-24). More particularly, the first protocol is instrumental in efficiently finding routes within a network, while the second protocol can

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be used to locate users (mobile nodes)(column 1 lines 23-25 lines 66-67, column 8 lines 22-24) in a network with rapidly changing topology.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Haas into the system of Okanoué for the purpose of mobility management (abstract, column 3 lines 47-51), efficiently finding routes within a network, and locating users in a network with rapidly changing topology (abstract, column 1 lines 7-13). However, Okanoué as modified by Haas does not specifically disclose that the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Iyer et al. show and disclose determining a dynamic hop count and latency between two nodes across a network in a computer environment wherein the communication unit is configured to transmit, to the detected service node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node (abstract, column 1 lines 65-67, column 2 lines 1-5 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art that the time the invention was made to incorporate the teachings of Iyer et al. into the system of Okanoué for the purpose of determining the number of hops and latency between two nodes.

4. **Claims 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Okanoué (US Patent # 5,179,861)** in view of **Iyer et al. (US Patent #US 7,058,706 B1)**.

a) Consider **claim 16**, Okanou clearly shows and discloses, a computer-readable storage medium, including computer executable instructions, wherein the instructions, when executed by a processor, cause the processor to function as a node and to perform a method, comprising: storing addresses of service nodes for providing a service to a mobile node (figure 2, figure 7, column 1 lines 23-24 lines 27-31, column 4 lines 48-50, column 5 lines 56-60); creating a node search packet to be transmitted to a one of the stored addresses, in order to search for the service node (figure 4a, abstract, column 1 lines 64-67, column 2 lines 24-26, column 4 lines 48-56, column 5 lines 56-67); transmitting the node search packet created(); receiving the node notice packet returned from at least one of a search packet reception node, which has received the node search packet, and a peripheral node other than the search packet reception node in response to a transmitted node search packet (figure 2, column 4 line 66 column 5 lines 1-2); detecting the service node based on the node notice packet received (abstract, column 2 lines 5-17, lines 31-35); updating the addresses based on the detected service node (figure 7, column 6 lines 13-17 lines 21-32). However, Okanou does not specifically disclose transmitting to the detected service node, by the search node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node.

Iyer et al. show and disclose determining a dynamic hop count and latency between two nodes across a network in a computer environment and transmitting to the detected service node, by the search node, data for investigating node information concerning the detected service node, the data for investigating node information including a request for a delay value and a number of hops in a packet transmission between the search node and the detected service node (abstract, column 1 lines 65-67, column 2 lines 1-5 lines 9-27).

Therefore, it would have been obvious to one of ordinary skill in the art that the time the invention was made to incorporate the teachings of Iyer et al. into the system of Okanoue for the purpose of determining the number of hops and latency between two nodes.

Response to Arguments

5. Applicant's arguments with respect to **claims 1-16** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 7,116,639 B1
- US 2005/0114262 A1
- US 7,185,077 B1
- US 6,917,966 B1
- US 6,658,000 B1

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MURRAY whose telephone number is 571-270-1773. The examiner can normally be reached on Monday - Friday 0800-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571)-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel Murray/
Examiner, Art Unit 2143

/Nathan J. Flynn/

Supervisory Patent Examiner, Art Unit 2154